

- suggestions for universal approach to identify areas for bird focal species studies
- example in winter cereals at BBCH 0-9 in the southern regulatory zone

BACKGROUND

new criteria in the revised EFSA guidance document on risk assessment for birds and mammals (2023) for the selection of focal species

"[...] regionally specific but relevant species may have to be considered [...]."

- a rare species that used the crop might be more vulnerable than a prevalent species
- all species that potentially use the crop have to be considered as relevant

BEFORE

selection of study area based on occurrence of crop

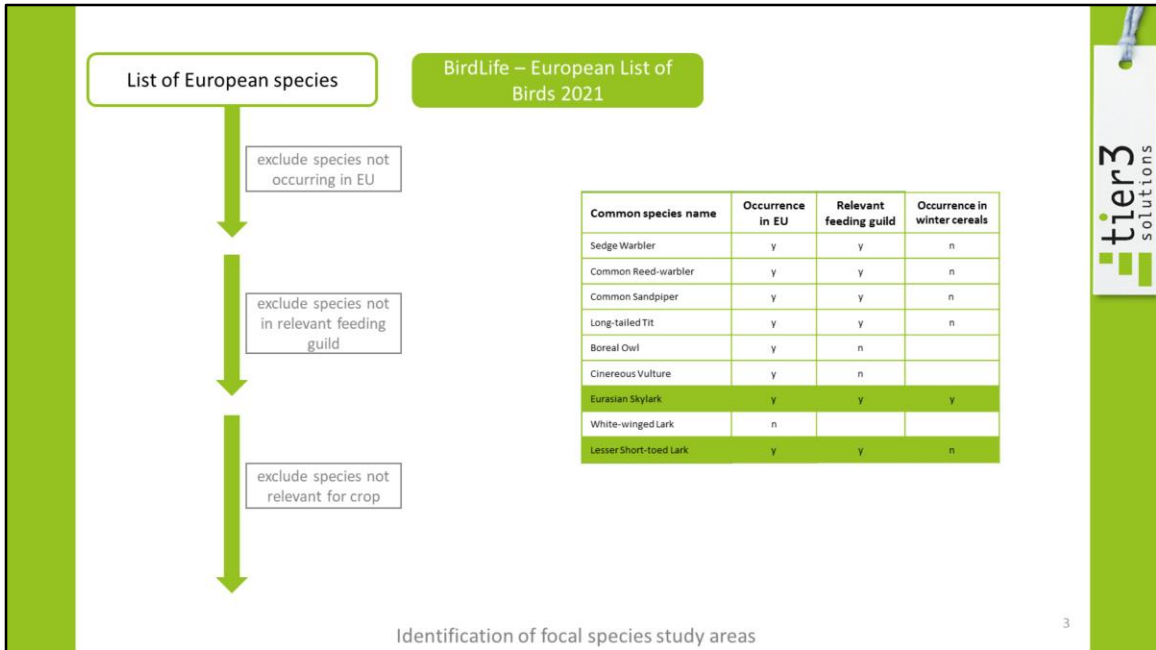
NOW

selection of study area based on occurrence of crop and possibly relevant species

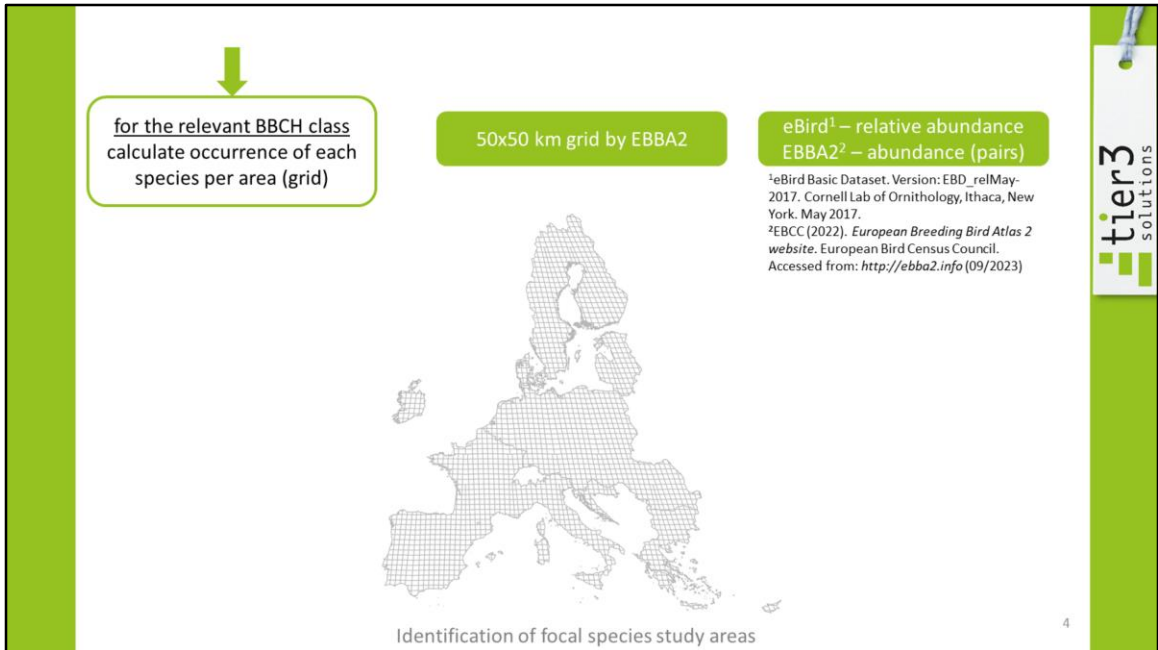
Identification of focal species study areas

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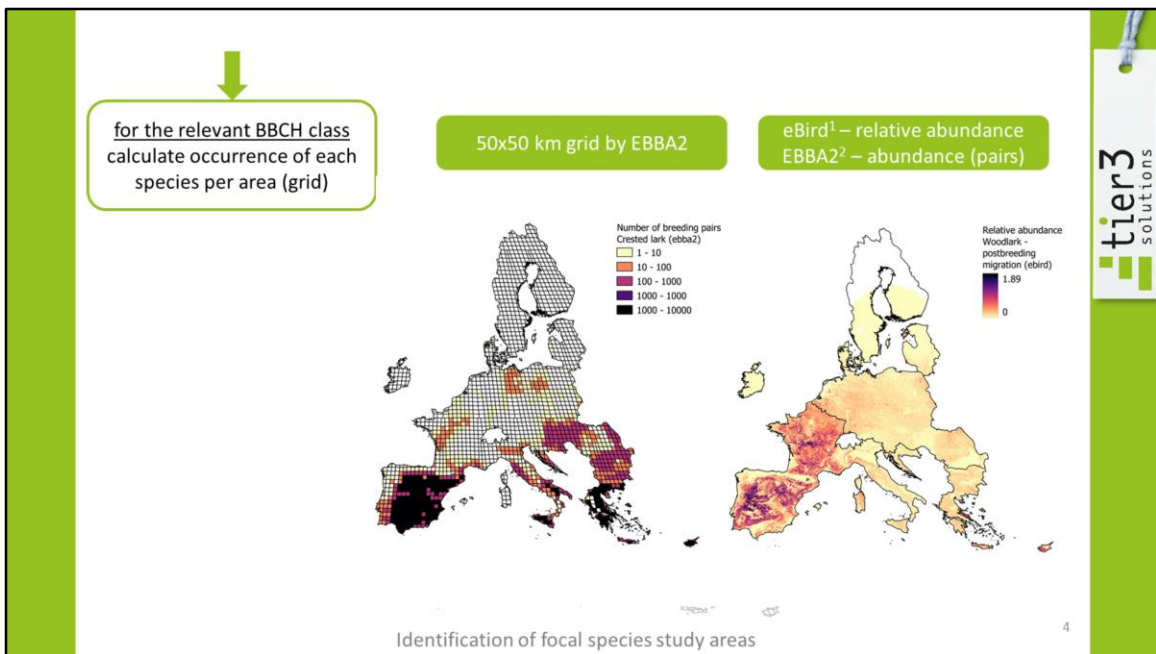
- before: focal species study centred on the occurrence of the crop
- now: consider all species that are potentially relevant.



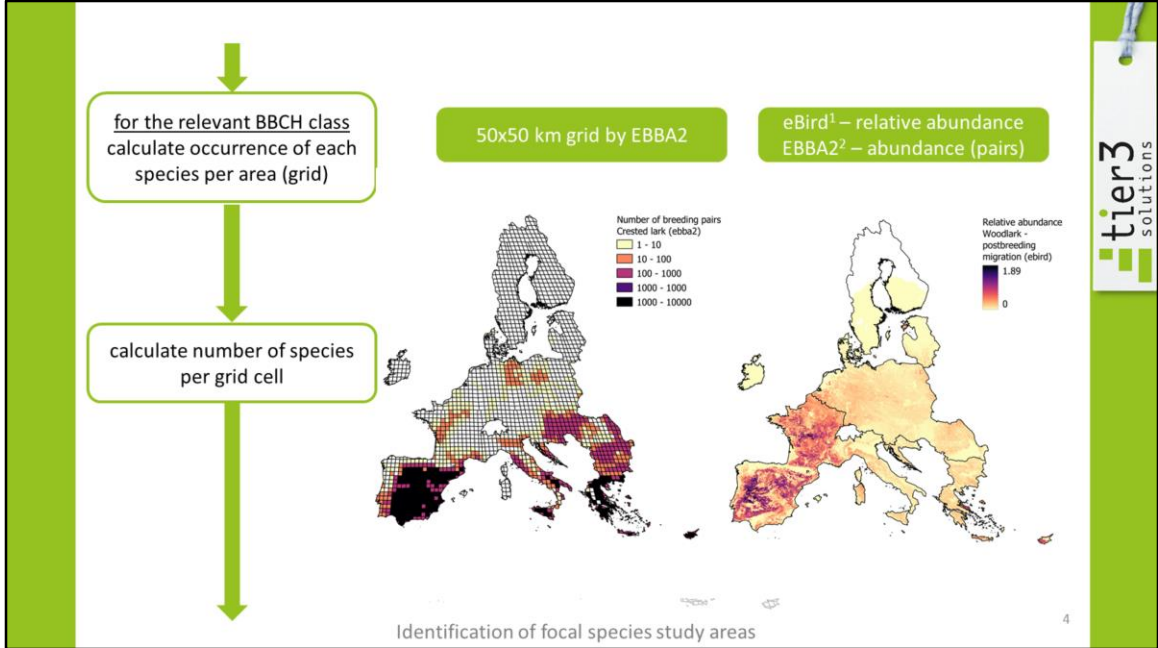
- comprehensive list of bird species in Europe (BirdLife European List of birds 2021) → 545 species
- BirdLife list as one option, other, equally suitable sources exist
- 1st step: exclusion of species that do not occur in the EU (IUCN red list, combined with expert knowledge) → 438 species in all three regulatory zones, 407 in SZ
- optional 2nd step: species not in a relevant feeding guild (carnivorous) excluded → 273 species (SZ)
- possible other well justified exclusions
- 3rd step: removal of species from the list that do not use the crop at the BBCH stage of interest (literature data, expert knowledge) → 90 species
- ➔ conservative list with species that could potentially occur in our crop – potentially relevant species
- exclusion of species carefully - in doubt keep on list
- use existing knowledge about species and their occurrence in the crop to remove birds from the list that are clearly covered by a similar species of the same feeding guild



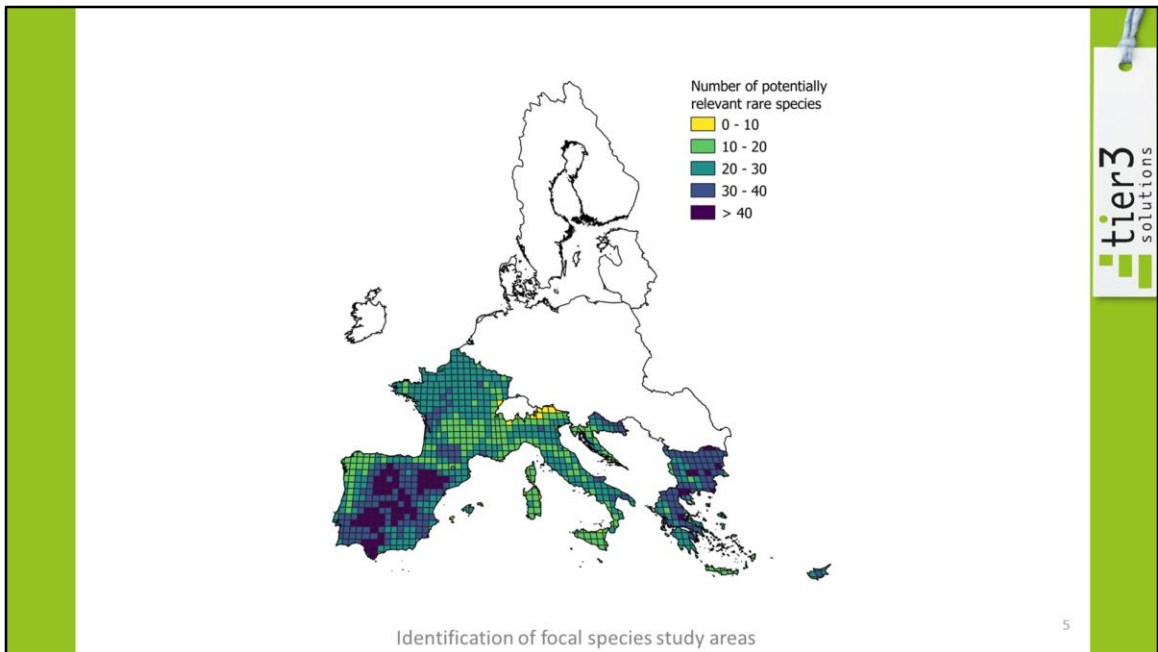
- occurrence of each species at the time of the BBCH stage (eBird + ebba2)
- eBird includes temporal information about the occurrence
- supplemented it with data from ebba2 for some resident species that were not included in eBird (e.g. crested lark)



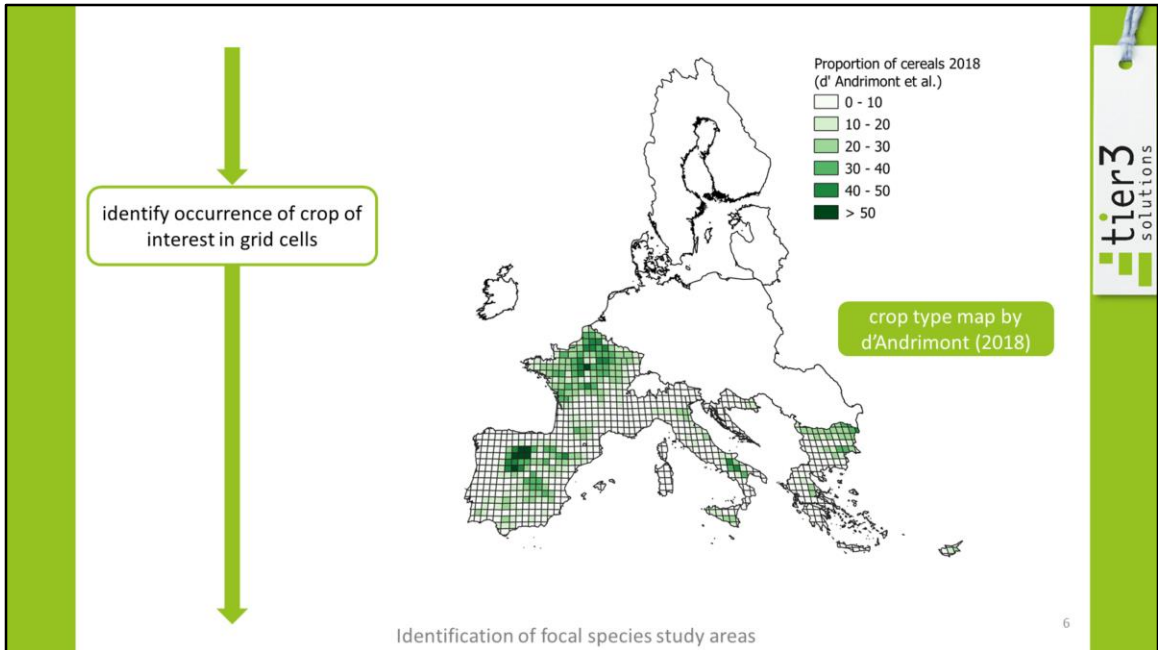
- number of breeding pairs of the crested lark as provided by ebba2 in a 50 x 50 km grid on the left
- relative abundance of the woodlark by ebird on the right
- more potential data sources than ebird and ebba2
- main requirements
 - time of the year factored in – especially for migrating birds
 - reliability
 - up to date
- target: selection of a limited number of study areas in order to be able to put sufficient effort into selected regions
- areas with as many potentially relevant bird species as possible
- other factors than the reduction of the study area could be integrated (e.g. agricultural practice)



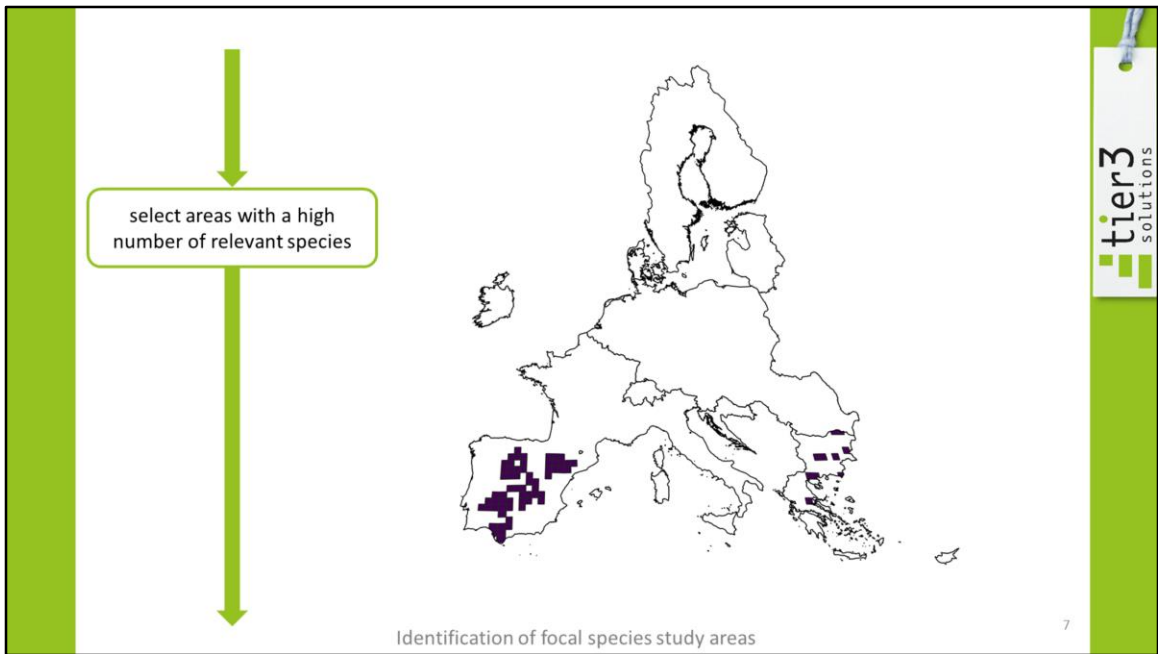
- calculate number of species per grid cell
- ebba2 grid with lower limit for each species to exclude areas with very low abundance



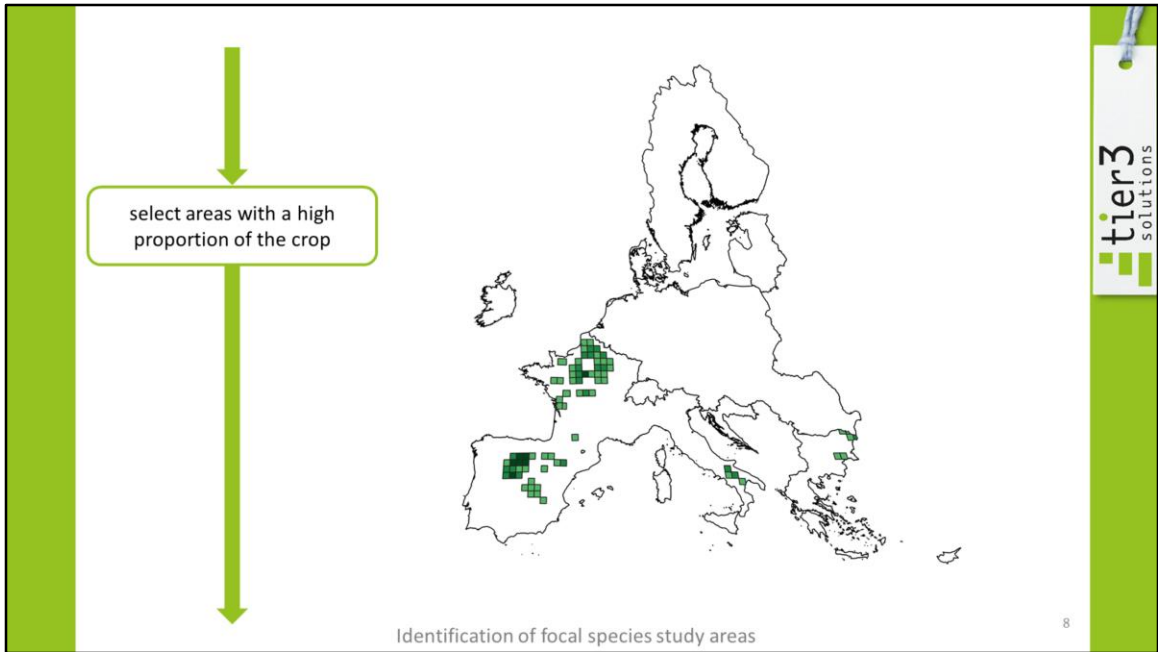
- map for the number of species in the southern zone with a regional distribution (“rare” species)
- ~70 species in this scenario
- remaining species on the potentially relevant species list can be found nearly everywhere



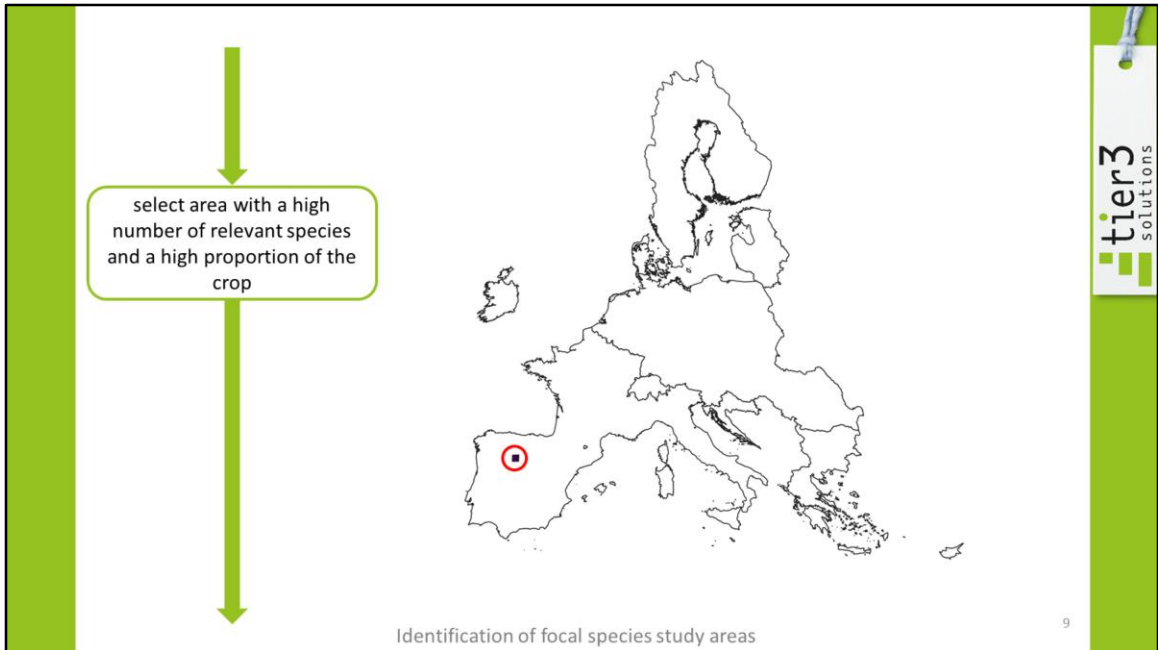
- occurrence of the crop
- proportion of cereals using the crop type map of d'Andrimont of 2018 (ebba2 grid)
- other data sources needed for other crops
- areas with a large proportion of the crop can be considered
- other factors should be integrated and further layers can be added (e.g. agricultural practice)



- selection of suitable areas
- SZ: Spain, Greece and Bulgaria



- identification of areas with a high proportion of crop
- lower limit of 33%
- Spain, North-East of Bulgaria, Italy



- select one of the grid cells with high number of species and high proportion of winter cereals
→ area in Spain.
- species like the Lesser Grey Shrike occur only in Eastern Europe → at least one other region in the Southern zone needed to cover species missing by this initial selection.

Identify relevant species not occurring in the area

Missing species		
Bean Goose	Eurasian Dotterel	Red-backed Shrike
Black-bellied Sandgrouse	European Herring Gull	Red-rumped Swallow
Black-eared Wheatear	Fieldfare	Redwing
Black-headed Gull	Great Grey Shrike	Ring Ouzel
Black-tailed Godwit	Grey Partridge	Rook
Black-winged Kite	Lesser Grey Shrike	Rough-legged Buzzard
Caspian Gull	Lesser Black-backed Gull	Thekla's Lark
Chukar	Iberian Grey Shrike	Yellow-legged Gull
Common Gull-billed Tern	Mediterranean Gull	Yellowhammer
Common Pheasant	Common Gull	Pin-tailed sandgrouse
Cretzschmar's Bunting	Ortolan Bunting	

- 32 species missing in selected cell in Spain

PROCESSING OF MISSING SPECIES IN SELECTED AREA

1. Much more relevant in another regulatory zone (if a study is conducted there)
2. Covered by another (at least similarly vulnerable) species occurring in area or surrounding area
3. Occurring in surrounding area
4. Occurring in another region of the same regulatory zone

Identification of focal species study areas

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- missing species need to be handled
- four different options
- 1. species is much more relevant in another regulatory zone (requirement: another study is conducted in this other zone)
- 2. species is covered by another at least similarly vulnerable species occurring in the are (well justified)
- 3. species occurs in the surrounding area of the selected cell and can be covered by including study fields there
- 4. species occurs in another region of the same regulatory zone → additional study region

MISSING SPECIES COVERED IN OTHER ZONE

Missing species	1.
Bean Goose	X
Black-bellied Sandgrouse	
Black-eared Wheatear	
Black-headed Gull	
Black-tailed Godwit	
Black-winged Kite	
Caspian Gull	X
Chukar	
Common Gull-billed Tern	
Common Pheasant	
Cretzschmar's Bunting	

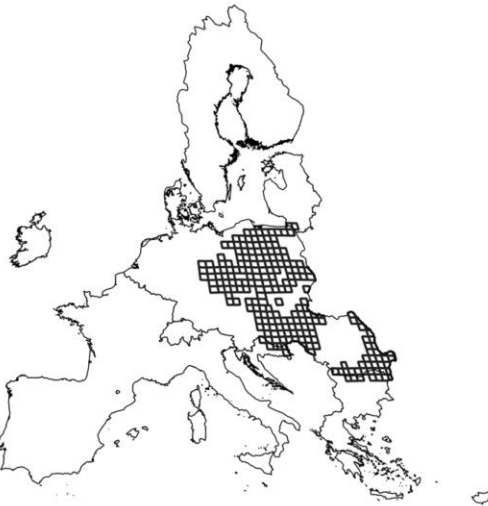
Missing species	1.
Eurasian Dotterel	
European Herring Gull	X
Fieldfare	
Great Grey Shrike	
Grey Partridge	
Lesser Grey Shrike	
Lesser Black-backed Gull	
Iberian Grey Shrike	
Mediterranean Gull	
Common Gull	X
Ortolan Bunting	

Missing species	1.
Red-backed Shrike	
Red-rumped Swallow	
Redwing	
Ring Ouzel	
Rook	
Rough-legged Buzzard	
Thekla's Lark	
Yellow-legged Gull	
Yellowhammer	
Pin-tailed sandgrouse	

- 4 missing species mostly occur in other regulatory zone (Bean Goose, Caspian gull, European Herring Gull, Common Gull)

MISSING SPECIES

Missing species	
Bean Goose	
Black-bellied Sandgrouse	
Black-eared Wheatear	
Black-headed Gull	
Black-tailed Godwit	
Black-winged Kite	
Caspian Gull	
Chukar	
Common Gull-billed Tern	
Common Pheasant	
Cretzschmar's Bunting	



Species	1.
Red Shrike	
Red Swallow	
Ringed Buzzard	
Chukar	
Ringed Gull	
Common Pheasant	
Black-bellied Sandgrouse	

Identification of focal species study areas

- Caspian Gull occurs mostly in the Northern and the Central Zone and only in a few areas in Croatia and Bulgaria in the Southern zone.

MISSING SPECIES COVERED BY OTHER SPECIES

Missing species	1.	2.
Bean Goose	X	
Black-bellied Sandgrouse		
Black-eared Wheatear		
Black-headed Gull		
Black-tailed Godwit		
Black-winged Kite		
Caspian Gull	X	X
Chukar		X
Common Gull-billed Tern		
Common Pheasant		
Cretzschmar's Bunting		X

Missing species	1.	2.
Eurasian Dotterel		
European Herring Gull	X	X
Fieldfare		
Great Grey Shrike		X
Grey Partridge		X
Lesser Grey Shrike		
Lesser Black-backed Gull		
Iberian Grey Shrike		
Mediterranean Gull		
Common Gull	X	X
Ortolan Bunting		

Missing species	1.	2.
Red-backed Shrike		
Red-rumped Swallow		
Redwing		X
Ring Ouzel		X
Rook		
Rough-legged Buzzard		
Thekla's Lark		
Yellow-legged Gull		
Yellowhammer		
Pin-tailed sandgrouse		

- 5 species covered by the occurrence of another closely related and likely more vulnerable species
- Chukar → Red-legged Partridge
- Cretzschmar's Bunting → Ortolan Bunting

MISSING SPECIES OCCURRING IN SURROUNDING AREA

Missing species	1.	2.	3.
Bean Goose	X		
Black-bellied Sandgrouse			
Black-eared Wheatear			
Black-headed Gull			X
Black-tailed Godwit			
Black-winged Kite			
Caspian Gull	X	X	
Chukar		X	
Common Gull-billed Tern			X
Common Pheasant			
Cretzschmar's Bunting		X	

Missing species	1.	2.	3.
Eurasian Dotterel			
European Herring Gull	X	X	
Fieldfare			
Great Grey Shrike		X	
Grey Partridge		X	
Lesser Grey Shrike			
Lesser Black-backed Gull			X
Iberian Grey Shrike			X
Mediterranean Gull			
Common Gull	X	X	
Ortolan Bunting			

Missing species	1.	2.	3.
Red-backed Shrike			
Red-rumped Swallow			
Redwing		X	X
Ring Ouzel		X	
Rook			
Rough-legged Buzzard			
Thekla's Lark			
Yellow-legged Gull			X
Yellowhammer			
Pin-tailed sandgrouse			

Identification of focal species study areas

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- Increasing the study area by including neighbouring cells of the selected grid cell
→ 6 species

MISSING SPECIES OCCURRING IN OTHER REGION

Missing species	1.	2.	3.	4.
Bean Goose	X			
Black-bellied Sandgrouse			X	
Black-eared Wheatear			X	
Black-headed Gull			X	
Black-tailed Godwit			X	
Black-winged Kite			X	
Caspian Gull	X	X		
Chukar		X		
Common Gull-billed Tern			X	
Common Pheasant			X	
Cretzschmar's Bunting		X		

Missing species	1.	2.	3.	4.
Eurasian Dotterel				X
European Herring Gull	X	X		
Fieldfare				X
Great Grey Shrike		X	X	
Grey Partridge		X	X	
Lesser Grey Shrike				X
Lesser Black-backed Gull			X	X
Iberian Grey Shrike			X	X
Mediterranean Gull				X
Common Gull	X	X		
Ortolan Bunting				X

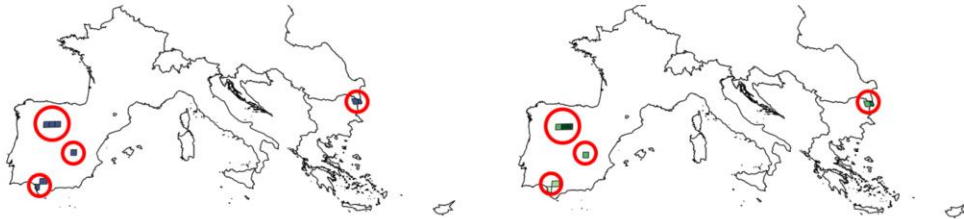
Missing species	1.	2.	3.	4.
Red-backed Shrike				X
Red-rumped Swallow				X
Redwing		X	X	
Ring Ouzel		X		
Rook				X
Rough-legged Buzzard				X
Thekla's Lark				X
Yellow-legged Gull			X	
Yellowhammer				X
Pin-tailed sandgrouse				X

Identification of focal species study areas

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- Increasing the study area by adding other regions → 21 species
- In some cases (e.g. Caspian Gull) more than one option applies

AREAS COVERING ALL RELEVANT SPECIES



Identification of focal species study areas

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- 4 regions in the Southern zone
- proportion of cereals of 12 – 63 %.
- 3 regions in South-Western Europe (Spain)
- cell at the coast is small and contains a lower proportion of cereals → some species occur only in coastal regions
- 1 study region in South-Eastern Europe (Bulgaria)
- randomness in the selection of the grid cells → other sets of cells likely cover the potentially relevant species as well

TO KEEP IN MIND

- mostly transparent approach
- universally applicable
- expert knowledge and secondary literature sources
 - feeding guilds
 - occurrence in crop
 - assessment of data quality
- comprehensible due to data-driven background
- dependent on high-quality data
- need of up-to-date data for species and crop occurrence to adapt to dynamic circumstances
- common crop ↔ less common crop

Identification of focal species study areas

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- possible approach
- considers all potentially relevant species and the crop
- mostly transparent
- universally applicable
- adaptable to different requirements
- expert knowledge and secondary literature needed
 - assignment of species to the feeding guilds and
 - assessment of probability of occurrence species in crop
- comprehensible, but highly dependent on high-quality data
- a high-quality dataset cannot guarantee that all potentially relevant species are found in the selected areas
- additional relevant species may be observed in the field that were not on the list
- conditions dynamic and changing constantly → data needs to be up-to date.
- works well for wide spread crops (cereals, oil seed rape, potatoes)
- needs to be adapted for less common crops (cotton, artichoke)
 - first select areas where the crop is cultivated
 - then extract the birds that occur in this area

